Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
	)	
GUSA Licensee, LLC	)	File No. SES-LIC-20050825-01183
	)	SES-AFS-20091221-01601
Application to operate a fixed earth station in the 1610-1618.725 MHz band at Clifton, Texas for in-orbit testing	)	Call Sign: E030266

ORDER AND AUTHORIZATION

Adopted: October 14, 2010 **Released: October 14, 2010**

By the Chief, Satellite Division, International Bureau:

I. INTRODUCTION

1. By this Order, we grant authority to GUSA Licensee, LLC ("GUSA") to operate a fixed earth station near Clifton, Texas, transmitting in the 1610-1618.725 MHz band, subject to conditions specified herein. Grant of this authorization will serve the public interest by enabling GUSA to more effectively operate the Globalstar satellites without causing harmful interference.

II. BACKGROUND

2. On August 25, 2005, GUSA filed an application for authority to operate a fixed earth station with a high gain transmit/receive antenna at Clifton, Texas.[1] The proposed station would be used to transmit unmodulated single-carrier signals to Globalstar Big LEO[2] satellites for the purposes of monitoring and adjusting satellite station-keeping and radio-frequency performance.[3] As proposed, the fixed earth station would transmit on frequencies in the 1610-1618.725 MHz band, which is currently assigned for uplink transmission from GUSA mobile earth stations.[4]

[1] The application was originally filed by Globalstar USA, LLC, which transferred its interest to GUSA Licensee, LLC by pro forma assignment. Letter to the FCC Secretary dated Aug. 21, 2006 from Josh L. Roland, Counsel for Globalstar LLC. In this order, we refer to both GUSA Licensee, LLC and its predecessor as "GUSA."

[2] "Big LEO" refers to Mobile-Satellite Service provided via non-geostationary-orbit satellites that receive transmissions from mobile earth stations in a portion of the 1610-1626.5 MHz frequency band.

[3] GUSA Application, Exhibit B at 2 and Exhibit D at 4.

[4] *See Globalstar Licensee LLC, GUSA Licensee LLC and Iridium Constellation LLC, Iridium Satellite LLC, Iridium Carrier Services LLC, Modification of Authority to Operate a Mobile Satellite System in the 1.6 GHz Frequency Band*, 23 FCC Rcd 15207 (2008). The fixed earth station would receive radio signals from the Globalstar satellites in the 2483.5-2500 MHz band, which has been assigned to the Globalstar licensee for Mobile-Satellite Service downlink transmission. *Application of Loral/Qualcomm Partnership, L.P. for Authority to Construct, Launch, and*

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3. GUSA's application was placed on public notice on September 14, 2005.[5] No comments were filed at that time. In January 2006, GUSA provided supplemental information in response to an inquiry from the Commission's staff.[6] In February 2006, Iridium Satellite LLC ("Iridium") filed informal comments on GUSA's application. In its filing, Iridium argues that the authority sought by GUSA should be granted only on a special temporary basis, subject to a condition requiring GUSA to sign a prior coordination agreement with Iridium.[7] In February 2007, GUSA provided additional information in response to further questions from Commission's staff.[8] GUSA amended the application on December 21, 2009 to request authority to operate the proposed station to communicate with second-generation Globalstar satellites to be licensed by the Republic of France.[9]

III. DISCUSSION

4. GUSA requests a waiver of the United States Table of Frequency Allocations ("Table of Allocations") to allow the proposed operation of a fixed earth station in the 1610-1618.725 MHz band, which is allocated for Mobile Satellite Service ("MSS").[10] We conclude that waiver of the Table of Frequency Allocations is unnecessary. We find that the proposed operation of a fixed earth station for the purpose of testing the performance of the Globalstar MSS satellites is a Space Operation Service, as defined in the Commission's rules: that is, "a radiocommunication service concerned exclusively with the operation of spacecraft."[11] The rule provision that defines Space Operation Service states that such service "will normally be provided within the service in which the space station is operating."[12] Hence, we find that the proposed operation of the fixed earth station the 1610-1618.725 MHz band to test the performance of the Globalstar satellites is within the scope of the MSS allocation for that frequency band.[13]

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Operate Globalstar, a Low Earth Orbit Satellite System to Provide Mobile Satellite Services in the 1610-1621.35/2483.5-2500 MHz Bands, Order and Authorization, 10 FCC Rcd 2333 (1995) ("*Globalstar MSS License Order*").

[5] Report No. SES-00749 (Sept. 14, 2005).

[6] Letter with attachment dated January 27, 2006 from Josh L. Roland, Counsel to Globalstar USA, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission.

[7] Letter dated February 10, 2006 from R. Michael Senkowski, Counsel to Iridium Satellite LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission ("Informal Objection").

[8] Letter with attachment dated February 16, 2007 from Josh L. Roland, Counsel to Globalstar USA, LLC, to Scott A. Kotler, Chief, Systems Analysis Branch, Satellite Division, International Bureau, Federal Communications Commission.

[9] File No. SES-AFS-20091221-01601.

[10] In effect, GUSA is requesting waiver of 47 C.F.R. § 2.102(a), which states that assignment and use of radio frequencies shall be in accordance with the Table of Frequency Allocations in 47 C.F.R. § 2.106, except as otherwise provided in other paragraphs of Section 2.102.

[11] 47 C.F.R. § 25.201.

[12] *Id.*

[13] Several years ago we dismissed an application from GUSA for the same facility for failure to request waiver of the Allocation Table. Letter from Thomas S. Tycz, Chief of Satellite Division, to William D. Wallace dated Nov. 19, 2004, DA 04-3651. The dismissal was predicated on the need for a waiver in order to operate a fixed station in a frequency band not allocated for Fixed Satellite Service, however, and did not discuss whether GUSA's proposed operations were space operations services. For the reasons stated above, we find that the proposed services are
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5. GUSA also requests waiver of Footnote 5.364 in the Table of Allocations,[14] which specifies a limit of -3 dBW/4 kHz on the mean e.i.r.p. spectral density of transmissions from mobile earth stations in parts of the 1610-1626.5 MHz frequency band that are not used for aeronautical radionavigation. The -3 dBW/4 kHz limit applies to transmission in any portion of the 1610-1626.5 MHz band, no part of which is currently used for aeronautical radionavigation.[15] As proposed in the application, the Globalstar fixed earth station would transmit a continuous wave signal[16] with an e.i.r.p. spectral density of 24 dBW/4 kHz, 27 dB above the -3 dBW/4 kHz limit.[17]

6. GUSA asserts the following basis for granting the requested waiver to allow operation of a fixed test station with power density in excess of the limit specified in Footnote 5.364. First, GUSA maintains that the proposed operations are necessary for GUSA to monitor and maintain its MSS satellite constellation, detect and facilitate correction of deviations from optimal performance, and perform initial performance checks as additional satellites are launched.[18] GUSA asserts that it is necessary for the proposed earth station to transmit with a power level of 24 dBW e.i.r.p. in order to overcome free-space attenuation to satellites at low elevation angles, where the satellite antennas have lower reception gain.[19] In this regard, GUSA asserts that the power of the signal when it reaches a satellite antenna must be at least 30 dB above the satellite receiver's noise floor so that the entire dynamic range of the satellites' antenna patterns can be measured. Globalstar mobile earth stations are unsuitable for transmitting the necessary test signals, according to GUSA, because they transmit relatively weak signals that reach the satellites with field strength considerably below the satellite receiver noise floor.[20] Moreover, GUSA maintains that a use of a fixed transmitter for such operation is preferable from an interference standpoint to use of a mobile device for the same purpose. GUSA stresses in this regard that the proposed station would operate in a sparsely-populated area and would only be used intermittently for short periods of time and states that it would operate the station on a non-interference basis.[21] GUSA also stresses that the fixed station's operation would be ancillary to the Globalstar system's conforming MSS operation.

7. In opposition, Iridium Satellite LLC, the licensed operator of the Iridium MSS system,

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allocated space operations services, and thus the 2004 decision's finding that a waiver of the Table of Allocations is required for the proposed fixed earth station is superseded by this Order.

[14] GUSA Application, Exhibit B at 2. *See* 47 C.F.R. § 2.106 Footnote 5.364.

[15] Footnote 5.364 also specifies a limit of -15 dBW/4kHz on the peak e.i.r.p. spectral density of transmissions in any portion of the band used for aeronautical radionavigation, which is inapplicable under current circumstances.

[16] *I.e.*, a signal of constant frequency and amplitude.

[17] GUSA Application, Exhibit A at 2 and Exhibit D at 2.

[18] GUSA Application, Exhibit B at 2. In particular, GUSA explains that signals from the fixed station can be used to detect and measure gain in the satellite transponders, which changes over time. The gain measurement will enable GUSA to make adjustments to balance the gain between transponders to facilitate call hand-offs from beam to beam and from one satellite to another. *Id.*, Exhibit D at 4. The fixed station's signals would also be used for measuring other satellite parameters. An affiliate of GUSA operates a similar earth station in France. Response to Question 1 in letter with attachment dated Feb. 16, 2007 from Josh L. Roland, Counsel to Globalstar USA, LLC, to Scott A. Kotler, Chief, Systems Analysis Branch, Satellite Division, International Bureau. GUSA maintains that an additional L-band test station in the Western Hemisphere will ensure that at least one such station is available to immediately test and diagnose any satellite anomaly that may occur. *Id.*

[19] *Id.*, Exhibit D at 4. GUSA has provided a link-budget analysis to support this assertion. Letter with attachment dated Jan. 27, 2006 from Josh L. Roland, Counsel to Globalstar USA, LLC, to the FCC Secretary.

[20] *Id.*

[21] GUSA Application, Exhibit B at 1-3 and Letter with attachment dated Jan. 27, 2006 from Josh L. Roland, Counsel to Globalstar USA, LLC, to the FCC Secretary.

expressed concern regarding potential interference. The Globalstar system and the Iridium system were originally assigned separate frequency bands for MSS operation,[22] but the Commission decided in the *Big LEO Spectrum-Sharing* rulemaking that the two systems should share the 1617.775-1618.725 MHz band.[23] Thus, a portion of the 1610-1618.725 MHz band that GUSA proposes to use for test transmission, the segment between 1617.775 MHz and 1618.725 MHz, is also assigned for MSS operation by the Iridium system. Iridium asserts that operation of the proposed station in the shared segment could interfere with co-channel Iridium operation and that GUSA has not contacted Iridium to coordinate. Further, Iridium argues that GUSA has provided no specific information as to the timing of the proposed test transmissions or suggested any method that Iridium could use to monitor such operation and notify GUSA of any resultant interference.[24] Iridium requests that the Commission condition any grant of the requested authority upon successful negotiation of a coordination agreement with Iridium. In the alternative, Iridium requests that the Commission require GUSA to restrict the station's operation to frequencies not shared with Iridium, provide at least 48 hours prior notice of operation in frequencies adjacent to the shared band, and give Iridium real-time access to responsible GUSA personnel.[25] Furthermore, Iridium contends that authority for the proposed operation should be granted only on an as-needed, special-temporary-authority basis.[26]

8. In response, GUSA states that it intends to coordinate operation of the proposed earth station in frequencies shared with the Iridium system so as to minimize harmful interference.[27]

9. Section 1.3 of the Commission's rules states that the Commission may waive its rules for "good cause shown."[28] Waiver is appropriate only if special circumstances warrant a deviation from the general rule, and such deviation would better serve the public interest than would strict adherence to the general rule.[29] Generally, the Commission may grant a waiver of its rules in a particular case only if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.[30]

10. We conclude, for the reasons stated by GUSA, that a waiver of Footnote 5.364 is warranted to allow the proposed operation of a fixed earth station for testing of the Globalstar MSS constellation on a non-harmful interference basis, subject to the conditions prescribed herein to prevent interference with operation of the Iridium Big LEO MSS system. Taking into consideration, *inter alia*,

[22] GUSA was licensed to use the 1610-1621.35 MHz band for MSS uplink transmission and the 2483.5-2500 MHz band for MSS downlink transmission. *Globalstar MSS License Order, supra.* Iridium was licensed to use the 1621.35-1626.5 MHz band for MSS transmission in both directions. *Application of Motorola Satellite Communications, Inc. for Authority to Construct, Launch, and Operate a Low Earth Orbit Satellite System in the 1616-1626.5 MHz Band, Order and Authorization*, 10 FCC Rcd 2268 (1995).

[23] See *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, Second Order on Reconsideration, Second Report and Order, and Notice of Proposed Rulemaking*, 22 FCC Rcd 19733, (2007).

[24] Iridium Informal Objection at 2.

[25] *Id.*

[26] *Id.*

[27] *See* response to Question 3 in Letter with attachment dated Feb. 16, 2007 from Josh L. Roland, Counsel to Globalstar USA, LLC, to Scott A. Kotler, Chief, Systems Analysis Branch, Satellite Division, International Bureau.

[28] *See* Section 1.3 of the Commission's rules, 47 C.F.R. §1.3. *See also WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969) (*WAIT Radio)*; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990) (*Northeast Cellular)*.

[29] *Northeast Cellular*, 897 F.2d at 1166.

[30] *WAIT Radio*, 418 F.2d at 1157.

the above-ground height specification for the proposed station's antenna, the rural location of the antenna site, and the distances from there to the closest highways, airports, and population centers, we find that operation of the proposed station in unshared frequencies would not result in a significant risk of harmful interference with downlink reception by Iridium mobile terminals. We agree with Iridium, however, that operation of the fixed station in frequencies shared with the Iridium system at the proposed power of 24 dBW could cause harmful interference with reception of co-frequency Iridium MSS transmissions. We therefore conclude that it would disserve the public interest to grant authority for high-power IOT operation in spectrum shared with the Iridium system, except insofar as Iridium consents to such operation.

11. It is also possible that operation of the proposed station on frequencies outside the shared band could cause spurious responses and/or desensitization in an Iridium satellite receiver. Such out-of-band interference with Iridium uplink reception can be avoided by ensuring that the fixed earth station does not transmit while an Iridium satellite is within the main lobe of its antenna and/or by refraining from transmitting the test signals on carrier frequencies near the edge of the shared band. By requiring GUSA to give Iridium advance notice of the fixed station's intermittent operation, moreover, we can ensure that any consequent interference would not go undetected – which, we believe, will suffice to deter GUSA from operating the station in a way that could cause harmful interference.

12. In order to ensure that non-conforming operation of the Globalstar fixed station will not harmfully interfere with Iridium MSS operations, this station authorization is therefore subject to the following conditions. GUSA must: i) refrain from operating the station in frequencies that are shared with the Iridium system without the consent of the Iridium licensee; ii) restrict the time and manner of the station's operation in non-shared frequencies as necessary to prevent harmful interference with Iridium uplink and/or downlink reception; and iii) give Iridium advance notice of the times of station operation and provide Iridium with phone numbers for contacting GUSA officials with authority to terminate such operation.

13. We do not agree with Iridium that operating authority for the fixed test station should be granted only on a special temporary basis. Although operation of the station will be intermittent, the need for test transmission will be recurrent and will persist for as long as the Globalstar MSS satellites remain in service. As GUSA asserts in its February 16, 2007 letter, a grant of regular authority will facilitate on-going maintenance of the Globalstar constellation by increasing the number of satellites that can be monitored simultaneously. This in turn will enable GUSA to gather better data and improve the satellites' performance.[31] Granting long-term license authority for the fixed test station spares GUSA from the burden of filing numerous successive requests for temporary authority. [32]

IV. CONCLUSION

14. We conclude that GUSA is legally and technically qualified and that grant of the subject application, subject to the conditions specified herein, will serve the public interest by assisting GUSA in efficiently monitoring and adjusting the station-keeping and radio-frequency performance of its MSS satellites.

15. We do not address here the request in the amendment filed on December 21, 2009 for authority to communicate with second-generation satellites. That request, which Iridium has opposed,

[31] *See* Response to Question 1 in Letter with attachment dated Feb. 16, 2007 from Josh L. Roland, Counsel to Globalstar USA, LLC, to Scott A. Kotler, Chief, Systems Analysis Branch, Satellite Division, International Bureau.

[32] *Cf. Intelsat North America LLC, Application for Authority to Modify Earth Station Authorization to Provide Launch and Early Orbit Phase ("LEOP") Operations for Newly Launched Satellites, Order and Authorization*, 21 FCC Rcd 14672 (Int'l Bur. 2006) at ¶13.

will be disposed of in a future order.

V. ORDERING CLAUSES

16. Accordingly, pursuant to authority delegated in Section 0.261 of the FCC's rules, 47 C.F.R. §0.261, IT IS ORDERED that Application File No. SES-LIC-20050825-01183 IS GRANTED to the extent indicated herein, and that GUSA Licensee, LLC IS AUTHORIZED to operate a fixed earth station in the 1610-1618.725 MHz (Earth-to-space) and 2483.5-2500 MHz (space-to-Earth) frequency bands with the technical specifications set forth in its application and consistent with the Commission's rules, subject to the following conditions:

a) Operation under this authorization shall not cause harmful interference to lawful operation of any radiocommunication or radio astronomy system in conformance with the Table of Frequency Allocations in Section 2.106 of the Commission's rules, 47 C.F.R. § 2.106. Upon receiving notice that operation of the station authorized herein is causing such harmful interference, GUSA shall terminate the interfering operation immediately.

b) The station shall not transmit in frequencies above 1617.775 MHz without the consent of the Iridium system licensee.

c) The time and manner of station operation shall be restricted as necessary to prevent harmful interference with Iridium uplink and/or downlink reception.

d) The Iridium system licensee must receive at least 48 hours advance notice of the time and duration of the station's transmissions, and such notice shall provide the Iridium system licensee with information for establishing immediate telephone contact with Globalstar system officials with authority to terminate the transmissions.

17. IT IS FURTHER ORDERED that disposition of the request in SES-AFS-20091221-01601 for authority to communicate with second-generation satellites IS DEFERRED.

FEDERAL COMMUNICATIONS COMMISSION

Robert G. Nelson
Chief, Satellite Division
International Bureau